

What is claimed is:

1. A device to prepare vertebral members for an implant comprising:
  - a docking ring forming a window sized to extend over a portion of the vertebral members and a disc space therebetween, the docking ring having a distal side with a plurality of spikes extending outward therefrom to extend within the vertebral members;
  - a mount sized to attach to the docking ring and extend across the window, the mount comprising a receiving section and a second section, the receiving section having a first width different than the second section; and
  - a plurality of instruments each having a pair of fingers spaced a distance apart to mate with the receiving section and align with the vertebral members.
2. The device of claim 1, wherein the docking ring includes a proximal side with a pair of channels positioned on opposite sides of the window and align with the disc space.
3. The device of claim 2, wherein the mount includes a pair of outwardly extending wings sized to mount within the pair of channels.
4. The device of claim 1, wherein the window has a substantially rectangular shape.
5. The device of claim 1, wherein each of said plurality of spikes has an inwardly tapering configuration to prevent splaying when mounted within the vertebral members.
6. The device of claim 1, further comprising a locking mechanism mounted within the mount and having a biasing mechanism that is selectively positionable between a first orientation in which the mount is fixedly attached to the docking ring and a second orientation in which the mount can be removed from the docking ring.

7. The device of claim 1, wherein the mount is positioned along a center line of the window.

5 8. A system to prepare first and second vertebral members to receive an implant comprising:

a foundation instrument having a body and a spacer, the body forming a window sized to extend over a portion of the first and second vertebral members and a disc space therebetween, and the spacer extending across the window,  
10 the spacer extending below the body to be positioned between the first and second vertebral members when the body is positioned on an anterior surface of the first and second vertebral members; and

a plurality of instruments each having a first section and a second section, the first section sized to mount on the spacer in a common alignment that  
15 positions the second section relative to the first and second vertebral members.

9. The system of claim 8, wherein the first section comprises a pair of fingers spaced a distance apart to straddle the spacer with the distance between the pair of fingers being substantially equal to the spacer width.

20 10. The system of claim 9, wherein the spacer has an indented section at a central position along the spacer to receive the pair of fingers and align the second section relative to the first and second vertebral members.

25 11. The system of claim 8, wherein the second section comprises a cutting surface to cut at least one of the first and second vertebral members.

12. The system of claim 8, wherein the second section comprises a body having a first edge that aligns with the first vertebral member and a second edge that  
30 aligns with the second vertebral member.

13. The system of claim 8, further comprising a shaft pivotally mounted to the spacer, the shaft having an extension position distally of a pivot and connects with an opening within the body.

5 14. The system of claim 13, further comprising a locking mechanism positioned within the shaft with a biasing mechanism to lock the spacer to the body.

15. The system of claim 8, wherein one of the plurality of instruments comprises a saw guide having a body with a predetermined height and width, with a pair of  
10 fingers extending outward from a distal end of the body and being spaced apart a distance to mate with the spacer.

16. The system of claim 15, further comprising first and second rail guides extending outward from and substantially perpendicular to the body, each of the  
15 first and second rail guides comprising an inner surface having a slot.

17. The system of claim 16, further comprising a saw blade having a distal end having a cutting edge, the saw blade having an overall width with a first edge positionable within the first rail guide and a second edge positionable within the  
20 second rail guide.

18. The system of claim 8, further comprising a planing guide with a flange having a width greater than the window and an extension extending out from a first side having a width less than the window, the planing guide being mountable  
25 onto the body with the flange sitting on a proximal edge and the extension being positioned within the window.

19. The system of claim 8, wherein the spacer has a width less than or equal to a normal disc height.

30

20. A device to prepare first and second vertebral members to receive an implant comprising:

a body having a proximal and distal edge and forming a window sized to extend over a portion of the first and second vertebral members and a disc space therebetween; and

a spacer attached to the body and positioned below the distal edge and being aligned with a central section of the window, the spacer having a width less than or equal to a normal disc height;

with the distal edge positioned on a surface of the first and second vertebral members and the spacer positioned within the disc space between the non-distracted first and second vertebral members.

21. The device of claim 20, wherein the spacer further comprises a plurality of outwardly extending wings that mount to the body and position the spacer within the central section of the window.

22. A device to prepare first and second vertebral members comprising:

a ring having an outer wall forming a window, the ring having a first edge having a plurality of spikes extending outward to mount within the first and second vertebral members and receiving sections on a second edge and aligned on opposite sides of the window; and

a trial having a head sized to extend across the window and wings extending outward a distance above the head to mount within the receiving sections;

the trial mountable with the ring with the wings positioned in the receiving sections and the head aligned across a central portion of the window and below the first surface.

23. The device of claim 22, wherein the head and the first edge are substantially parallel when the trial is mounted within the ring.

24. The device of claim 22, wherein the receiving sections comprise channels that extend inward from the second edge and grooves that align with the channels, the receiving sections having a reduced width in the channels relative to the ring.

5

25. The device of claim 24, wherein the wings further include outwardly extending tabs positioned at a proximal end of the wings, the tabs being sized to seat within the channels and the wings seat within the grooves when the trial is mounted within the ring.

10

26. The device of claim 22, further comprising a shaft pivotally connected to the head and a locking mechanism comprising a spring positioned within the shaft, the locking mechanism positionable between a locked orientation with a distal end of the shaft connected to the ring, and an unlocked orientation in which the distal end is distant from the ring.

15

27. A method of preparing first and second vertebral members to receive an implant, the method comprising the steps of:

5       determining a normal disc height between the first and second vertebral members;

          attaching a foundation device to the first and second vertebral members and creating a reference relative to the first and second vertebral members, the foundation device including a head positioned between the first and second vertebral members;

10       using the reference and aligning a first instrument relative to the first and second vertebral members and performing a first procedure on the first and second vertebral members;

          using the reference and aligning a second instrument relative to the first and second vertebral members and performing a second procedure on the first and second vertebral members; and

15       inserting the motion-preserving implant between the first and second vertebral members.

28. The method of claim 27, further comprising preventing distraction of the first and second vertebral members by sizing the head to have a width less than or equal to the normal disc height.

29. The method of claim 27, wherein the first procedure and the second procedure each remove an equal amount of bone from the first and second vertebral members.

30. The method of claim 31, wherein the step of creating a reference relative to the first and second vertebral members comprises positioning the head at a midpoint between the first and second vertebral members.

30

31. A method of preparing first and second vertebral members, the method comprising the steps of:

determining a normal disc height between the first and second vertebral members;

5 inserting an intervertebral section of a foundation device between the first and second vertebral members, the intervertebral section having a width less than or equal to the normal disc height and being positioned such that endplate sections of the first and second vertebral members are exposed;

10 attaching the foundation device to the first and second vertebral members and creating a reference;

aligning an instrument relative to the reference and removing bone from the endplate sections; and

removing the foundation device from the first and second vertebral members.

15

32. The method of claim 31, further comprising attaching together a first member and a second member to make the foundation device prior to inserting the intervertebral section of the foundation device between the first and second vertebral members.

20

33. The method of claim 32, further comprising aligning a window of the foundation device to extend over the endplate sections of the first and second vertebral members.

25 34. The method of claim 32, further comprising aligning a second instrument relative to the reference and performing a second bone removal process on anterior surfaces of the first and second vertebral members.

35. A method of preparing first and second vertebral members comprising the steps of:

5        selecting a docking ring having a window sized to extend over endplates of the first and second vertebral members;

      attaching an interbody trial to the docking ring with a member of the interbody trial extending across the window;

10       positioning the member between the first and second vertebral members and positioning the docking ring on an anterior surface of the first and second vertebral members;

      fixedly attaching the docking ring with the interbody trial to the first and second vertebral members; and

      aligning an instrument with the member and removing portions of the endplates of the first and second vertebral members.

15

36. The method of claim 35, further comprising pivoting a shaft of the interbody trial relative to the docking ring to remove the interbody trail from the docking ring.

20    37. The method of claim 35, wherein the step of attaching the interbody trial to the docking ring with the member of the interbody trial extending across the window includes locking the interbody trial to the docking ring with a biasing mechanism.

25    38. The method of claim 35, wherein the step of fixedly attaching the docking ring with the interbody trial to the first and second vertebral members comprises placing a depth gauge against one of the first and second vertebral members, and applying a force to the docking ring driving spikes into the first and second vertebral members to a depth determined by the depth gauge.

30



39. A method of preparing a first vertebral member and a second vertebral member for receiving an implant, the method comprising the steps of:

attaching a docking ring to the first and second vertebral members with a window positioned over a disc space and a head extending across the window  
5 and between the first and second vertebral members, the head comprising a mating section aligned with the disc space;

attaching a first instrument to the mating section to be aligned with the first and second vertebral members;

performing a first procedure and removing a first amount of the first and  
10 second vertebral members;

removing the first instrument from the mating section with the docking ring remaining attached to the first and second vertebral members;

attaching a second instrument to the mating section to be aligned with the first and second vertebral members; and

15 performing a second procedure and removing a second amount of the first and second vertebral members.

40. The method of claim 39, further comprising removing sections of endplates from the first and second vertebral members with the first instrument and

20 removing anterior portions of the first and second vertebral members with the second instrument.

41. A method of preparing first and second vertebral members comprising the steps of:

- 5       positioning a docking ring having a window and a member over endplates of the first and second vertebral members with the member aligned relative to a disc space formed between the first and second vertebral members;
- attaching a first instrument to the member and machining sections of the first and second vertebral members;
- attaching a saw guide to the member with the saw guide having a first rail  
10   guide aligned relative to the first vertebral member and a second rail guide aligned relative to the second vertebral member;
- aligning a saw blade within the first and second vertebral members by inserting edges of the saw blade within the first and second rail guides; and
- sliding the saw blade within the first and second rail guides and cutting the  
15   first and second vertebral members.

42. The method of claim 41, wherein the step of cutting the first and second vertebral members comprises using a double-blade and cutting the first and second vertebral members concurrently.

20

43. The method of claim 42, further comprising straddling the saw blade over the member.

44. The method of claim 45, further comprising controlling the depth of cutting  
25   the first and second vertebral members by contacting a depth stop with the member.

45. The method of claim 41, further comprising positioning a power mechanism between the first and second rail guides when cutting the first and second  
30   vertebral members.

46. A method of preparing first and second vertebral members for an implant comprising the steps of:

selecting a docking ring having a window sized to extend over endplates of the first and second vertebral members;

5        attaching an interbody trial to the docking ring and positioning a head to extend across the window with the head positioned between the first and second vertebral members;

10        attaching a planing guide to the docking ring, the planing guide having a flange that mounts over the window and a plurality of apertures which align with the sections of the first and second vertebral members;

inserting a reamer through the plurality of apertures and removing a portion of an anterior surface of the first and second vertebral members;

attaching a saw guide to the head and aligning the saw guide relative to the first and second vertebral members;

15        aligning a saw blade with the saw guide and cutting portions of the first and second vertebral members; and

positioning an implant between the first and second vertebral members.

20        47. The method of claim 46, further comprising preventing distraction of the first and second vertebral members by sizing the head and the implant to be equal to or smaller than a normal disc height.

25        48. The method of claim 46, wherein the step of positioning the implant between the first and second vertebral members comprising attaching the implant to a holder and aligning the implant and holder relative to the first and second vertebral members.